

AIR MONITORING SUMMARY REPORT

Hot Spot Delineation and Excavation

Remedial Action, Parcel E-2

Hunters Point Naval Shipyard

San Francisco, California

Monitoring Period February 28th, 2017 through March 16th, 2017

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LIST OF ABBREVIATIONS AND ACRONYMS

AMSR	Air Monitoring Summary Report
Cal/OSHA	California Occupational Safety and Health Administration
Cfm	cubic feet per minute
CFR	Code of Federal Regulations
CTO	Contract Task Order
DCP	Dust Control Plan
EPA	United States Environmental Protection Agency
Gilbane	Gilbane Federal
HPNS	Hunters Point Naval Shipyard
L/min	liters per minute
mg/m ³	milligrams per cubic meter
Navy	U.S. Department of the Navy
NIOSH	National Institute for Occupational Safety and Health
PAH	polycyclic aromatic hydrocarbon
PEL	permissible exposure limit
PCB	polychlorinated biphenyl
PM10	particulate matter less than 10 microns in diameter
PUF	polyurethane foam
SSHO	Site Safety and Health Officer
TWA	time-weighted average
µg/m ³	micrograms per cubic meter

1.0 INTRODUCTION

This Air Monitoring Summary Report (AMSR) was prepared by Gilbane Federal (Gilbane) as requested by the United States Department of the Navy (Navy) under Radiological Environmental Multiple Award Contract N62473-10-D-0808, Contract Task Order (CTO) 0007. Gilbane is performing air monitoring at Hunters Point Naval Station (HPNS) in accordance with the Final Dust Control Plan (DCP), included as Appendix D to Hot Spot Delineation and Excavation Remedial Action Final Work Plan for Parcel E-2, Hunters Point Naval Shipyard, San Francisco, California (ITSI Gilbane Company, 2014). The DCP describes the procedures that minimize dust during work activities, and requires air monitoring to ensure these procedures are effective. The DCP helps prevent exposure of residents and construction crews to potential airborne chemicals of concern, and dust from the work area.

This summary report describes the following:

- Where and how air monitoring samples were collected
- What test methods were used to analyze air monitoring samples
- How air monitoring data were evaluated

This AMSR summarizes the air monitoring activities conducted by Gilbane at Hunters Point Naval Shipyard (HPNS) from February 28, 2017 through March 16th, 2017 and compares the results with the established action levels included in the Work Plan (ITSI Gilbane Company, 2014).

2.0 MONITORING SITE LOCATIONS

Air monitoring stations were deployed at one upwind and one downwind location from the work area whenever active soil handling operations were in progress. The activities during the period covered by new data in the document (i.e., February 27th, 2017 to March 16th, 2017) consisted of reloading and preparing RSY 4 pads for radiological survey. For further details of site activities, see Section 5.0. Based on past meteorological data, the prevalent wind direction at HPNS was from the west or west-southwest. Locations of RSY4 air monitoring stations are presented on Figure 1.

Air monitoring was performed to estimate and assess the impact of field activities. The location of air monitoring stations were determined based on the prevailing wind direction, and were modified as needed for accessibility and worker safety considerations. Wind direction was monitored daily using a wind sock. Atmospheric parameters were checked daily at www.wunderground.com from station

KCABRISB5 (see Attachment 1). Monitoring stations remained stationary while sampling was conducted. Each monitoring station included four different monitoring systems:

1. Asbestos
2. Particulate matter less than 10 microns in diameter (PM10),
3. Total Suspended Particulates (TSP), which was also analyzed for arsenic, lead and manganese.

3.0 ANALYTICAL METHODS

3.1 Asbestos

Air samples were sampled and analyzed in accordance with National Institute for Occupational Safety and Health (NIOSH) Method 7400, from the *NIOSH Manual of Analytical Methods* (NIOSH, 1994). Method 7400 requires that samples were collected on three-piece cellulose ester filters fitted with conductive cowlings at a sampling rate of between 0.5 liters per minute (L/min) and 16 L/min. Each sample was collected over a period not to exceed 24 hours.

3.2 PM10

Air samples were sampled in accordance with the U.S. Environmental Protection Agency (EPA) reference sampling method for PM10, described in 40 CFR 50, Subpart J. Each sample was collected on a filter over an approximately 24-hour period; the filter was then weighted to determine the amount of PM10 collected.

3.3 TSP, Manganese, Arsenic and Lead

TSP samples were collected with a high-volume (39 to 60 cubic feet per minute [cfm]) air sampler in accordance with EPA's reference sampling method for TSP, described in Title 40 Code of Federal Regulations (CFR), Part 50, Subpart B. Each sample was collected on a filter over an approximately 24 hour period; the filter was then weighted to determine the amount of TSP collected. Once the filter weight was determined, the sample was analyzed for manganese and arsenic in accordance with one of the IO-3 methods identified in Compendium of Methods for the Determination of Inorganic Compounds in Ambient Air (EPA, 1999), and for lead in accordance with a modified EPA Method 12. The equipment specifications and sampling procedures have complied with the specifications provided in the regulations for the sampler, filter, accuracy, calibration, and quality assurance.

3.4 PCBs/PAHs

No PCBs/PAHs samples were taken during this air monitoring period as there were no field excavations.

4.0 ANALYSIS OF AIR MONITORING DATA

Analytical data from air monitoring samples were compared with the threshold criteria listed in Table 1.

Table 1 Air Monitoring Threshold Criteria

Test Parameter	Threshold Criterion	Threshold Criteria Reference
Asbestos	0.1 fiber/cm ³	Cal/OSHA PEL
PM10	5,000 ug/m ³	Cal/OSHA PEL ^a
TSP	0.5 mg/m ³	Basewide HPNS Level selected to minimize overall permissible dust release from sites
Arsenic	0.010 mg/m ³	Cal/OSHA PEL
Lead	0.050 mg/m ³	Cal/OSHA PEL
Manganese	0.200 mg/m ³	Cal/OSHA PEL
PCBs	500 ug/m ³	Cal/OSHA PEL
PAHs	200 ug/m ³	Cal/OSHA PEL

Note:

^a = Cal/OSHA PEL for particulates not otherwise regulated (respirator) used for PM10.

ug/m³ = micrograms per cubic meter

Cal/OSHA = California Division of Occupational Safety and Health Administration

fiber/cm³ = fiber per cubic centimeter

HPNS = Hunters Point Naval Shipyard

mg/m³ = milligrams per cubic meter

PAH = polycyclic aromatic hydrocarbon

PCB = polychlorinated biphenyl

PEL = permissible exposure limit

PM10 = particulate matter less than 10 microns in diameter

TSP = total suspended particulates

Construction and remediation activities conducted between February 28th, 2017 and March 16th, 2017 did not result in the exceedance of the established threshold criteria.

5.0 AIR MONITORING RESULTS

Weather information (including ambient pressure and temperature data) and air monitoring results are presented in the tables included as Attachment 1. Data was collected from upwind Station 10 and downwind Station 9 from February 27th, 2017 thru March 16th, 2017 during which Gilbane was reloading empty RSY pads and preparing the RSY pads for radiological survey. Samples were not collected during periods of site inactivity, rain events, and/or while site work was limited to non-earth moving tasks.

6.0 REFERENCE

National Institute for Occupational Safety and Health, (NIOSH), 1994. *Manual of Analytical Methods*.

United States Environmental Protection Agency (EPA), 1998. *Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II: Ambient Air Specific Methods*.

ITSI Gilbane Company, 2014. *Final Work Plan Hot Spot Delineation and Excavation Remedial Action, Parcel E-2, Hunters Point Naval Shipyard, San Francisco, California*. March.

FIGURES



Radiological Hot Spot
Parcel E-2
Hunters Point Naval Shipyard
San Francisco, California

Figure 1
Parcel E-2
RSY-4 Air Monitoring Locations

ATTACHMENTS

Table 1
Ambient Pressure and Temperature Monitoring Results

Date	Ambient Pressure (in Hg)	Ambient Temperature (°F)
2/27/2017	30.05	47.8
2/28/2017	30.20	50.0
3/1/2017	30.31	51.9
3/2/2017	30.15	53.2
3/7/2017	30.26	53.3
3/8/2017	30.24	54.2
3/9/2017	30.12	59.4
3/13/2017	30.04	59.5
3/14/2017	30.03	59.2
3/15/2017	30.10	56.8
3/16/2017	30.05	58.0

Note:

°F = degree Fahrenheit

in Hg = inches of mercury

Data from (www.wunderground.com) (Station KCABRISB5)

Table 2**Asbestos Monitoring Results**

Cal-OSHA Permissible Exposure Limit: 0.1 fiber/cc

Sample, Date and Station Information			Sampler Run Information		Asbestos Fibers		
Sample ID	Sample Start Date ¹	Monitoring Station	Duration of Run (min)	Total Air Volume Monitored (m ³)	Asbestos (fibers)	Conc Asbestos (fibers/cm ³)	Exceedance (Yes/No)
MS09-022717	02/27/17	MS09	396	792	0	<0.0034	N
MS10-022717	02/27/17	MS10	359	718	0	<0.0038	N
MS09-022817	02/28/17	MS09	405	810	0	<0.0033	N
MS10-022817	02/28/17	MS10	478	956	0	<0.0028	N
MS09-030117	03/01/17	MS09	480	960	0	<0.0028	N
MS10-030117	03/01/17	MS10	475	950	0	<0.0028	N
MS09-030217	03/02/17	MS09	485	970	0	<0.0028	N
MS10-030217	03/02/17	MS10	485	970	0	<0.0028	N
MS09-030717	03/07/17	MS09	450	900	0	<0.0030	N
MS10-030717	03/07/17	MS10	430	860	0	<0.0031	N
MS09-030817	03/08/17	MS09 ²	NA	NA	NA	NA	NA
MS10-030817	03/08/17	MS10 ²	NA	NA	NA	NA	NA
MS09-030917	03/09/17	MS09	441	882	0	<0.0031	N
MS10-030917	03/09/17	MS10	430	860	0	<0.0031	N
MS09-031317	03/13/17	MS09	465	930	0	<0.0029	N
MS10-031317	03/13/17	MS10	464	928	0	<0.0029	N
MS09-031417	03/14/17	MS09	480	960	0	<0.0028	N
MS10-031417	03/14/17	MS10	465	930	0	<0.0029	N
MS09-031517	03/15/17	MS09	457	914	0	<0.0030	N
MS10-031517	03/15/17	MS10	450	900	0	<0.0030	N
MS09-031617	03/16/17	MS09	395	790	0	<0.0034	N
MS10-031617	03/16/17	MS10	392	784	0	<0.0030	N

Notes:¹Air sample was not collected on days with rain or when contaminated soil was not disturbed.²Air sample not collected due to asbestos pump malfunction.

l/min = liters per minute

min = minutes

m³ = cubic metersfibers/cm³ = fibers per cubic centimeter

< = below detection limit

Table 3**Particulate Matter, smaller than Ten Microns (PM10) Monitoring Results**Cal-OSHA Permissible Exposure Limit: 5.0 mg/m³

Sample, Date and Station Information			Sampler Run Information			PM10s	
Sample ID	Sample Start Date ¹	Monitoring Station	Air Flow (l/min)	Duration of Run (min)	Total Air Volume Monitored (m ³)	Concentration in Air (mg/m ³)	Exceedance (Yes/No)
Q0336217-MS09	02/27/17	9	1.129	1388	1312.04	0.008	No
Q0366218-MS10	02/27/17	10	1.119	1387	1310.34	0.008	No
Q0366219-MS09	02/28/17	9	1.131	1433	1354.56	0.013	No
Q0366220-MS10	02/28/17	10	1.123	1429	1352.88	0.035	No
Q0366221-MS09	03/01/17	9	1.133	1430	1351.73	0.013	No
Q0366222-MS10	03/01/17	10	1.125	1442	1365.95	0.016	No
Q0366223-MS09	03/02/17	9	1.132	1437	1355.09	0.016	No
Q0366224-MS10	03/02/17	10	1.123	1414	1335.00	0.031	No
Q0366225-MS09	03/07/17	9	1.133	1435	1354.26	0.011	No
Q0366226-MS10	03/07/17	10	1.121	1360	1282.10	0.011	No
Q0366227-MS09	03/08/17	9	1.131	1410	1328.22	0.012	No
Q0366228-MS10	03/08/17	10	1.121	1405	1324.54	0.016	No
Q0366229-MS09	03/09/17	9	1.138	1311	1236.27	0.012	No
Q0366230-MS10	03/09/17	10	1.127	1299	1224.95	0.017	No
Q0366231-MS09	03/13/17	9	1.142	1424	1346.91	0.021	No
Q0366236-MS10	03/13/17	10	1.130	1391	1314.31	0.053	No
Q0366237-MS09	03/14/17	9	1.140	1456	1375.54	0.014	No
Q0366238-MS10	03/14/17	10	1.127	1465	1381.68	0.045	No
Q0366239-MS09	03/15/17	9	1.139	1421	1344.08	0.009	No
Q0366240-MS10	03/15/17	10	1.125	1417	1335.85	0.010	No
Q0366241-MS09	03/16/17	9	1.136	1292	1218.73	0.013	No
Q0366242-MS10	03/16/17	10	1.128	1282	1211.11	0.014	No

Notes:

¹Air sample was not collected on days with rain or when contaminated soil was not disturbed.

l/min = liters per minute

PM₁₀-particulate matter smaller than 10 microns in diameter

min = minutes

Samples analyzed by ALS Environmental

m³ = cubic meters

Sample locations are shown on Figure 1

mg = milligrams

mg/m³ = milligrams per cubic meter

ug = micrograms

Table 4**Total Suspended Particulates, Arsenic, Manganese, and Lead Monitoring Results**Cal-OSHA Permissible Exposure Limits: TSP - 0.5 mg/m³; Arsenic - 0.010 mg/m³; Manganese - 0.2 mg/m³; Lead - 0.05 mg/m³

Sample, Date and Station Information			Sampler Run Information			Total Suspended Particulates		Arsenic		Lead		Manganese	
Sample ID	Sample Start Date ¹	Monitoring Station	Ave Flow Rate (l/min)	Duration of Run (min)	Total Air Volume Monitored (m ³)	Concentration in Air (mg/m ³)	Exceedance (Yes/No)	Concentration in Air (mg/m ³)	Exceedance (Yes/No)	Concentration in Air (mg/m ³)	Exceedance (Yes/No)	Concentration in Air (mg/m ³)	Exceedance (Yes/No)
9288908-MS09	02/27/17	9	1.207	1389.60	1676.76	0.013	No	<0.000015	No	<0.000015	No	<0.000015	No
9288909-MS10	02/27/17	10	1.201	1389.00	1668.51	0.018	No	<0.000015	No	<0.000015	No	<0.000015	No
9288910-MS09	02/28/17	9	1.212	1434.00	1737.97	0.026	No	<0.000014	No	<0.000014	No	0.000015	No
9288911-MS10	02/28/17	10	1.201	1427.40	1714.77	0.093	No	<0.000015	No	<0.000015	No	0.000050	No
9288912-MS09	03/01/17	9	1.210	1429.20	1729.83	0.021	No	<0.000014	No	<0.000014	No	<0.000014	No
9288913-MS10	03/01/17	10	1.202	1424.40	1712.80	0.035	No	<0.000015	No	<0.000015	No	0.000027	No
9288914-MS09	03/02/17	9	1.213	1438.80	1745.47	0.030	No	<0.000014	No	<0.000014	No	0.000015	No
9288915-MS10	03/02/17	10	1.203	1432.80	1723.83	0.080	No	<0.000015	No	<0.000015	No	0.000050	No
9288916-MS09	03/07/17	9	1.212	1440.60	1745.84	0.014	No	<0.000014	No	0.000022	No	<0.000014	No
9288917-MS10	03/07/17	10	1.205	1366.80	1647.61	0.018	No	<0.000015	No	<0.000015	No	<0.000015	No
9288918-MS09	03/08/17	9	1.213	1406.40	1705.67	0.021	No	<0.000015	No	0.000088	No	<0.000015	No
9288919-MS10	03/08/17	10	1.204	1399.20	1684.29	0.037	No	<0.000015	No	0.00010	No	0.000022	No
9288921-MS09	03/09/17	9	1.218	1309.80	1594.91	0.031	No	<0.000016	No	0.000021	No	0.000019	No
9288920-MS10	03/09/17	10	1.210	1300.20	1573.11	0.039	No	<0.000016	No	<0.000016	No	0.000025	No
9288926-MS09	03/13/17	9	1.219	1423.80	1735.95	0.040	No	<0.000014	No	<0.000014	No	0.000021	No
9288927-MS10	03/13/17	10	1.212	1421.40	1723.21	0.140	No	<0.000015	No	0.000019	No	0.000098	No
9288928-MS09	03/14/17	9	1.217	1454.40	1770.36	0.026	No	<0.000014	No	<0.000014	No	0.000016	No
9288929-MS10	03/14/17	10	1.211	1465.20	1774.76	0.120	No	<0.000014	No	0.000015	No	0.000082	No
9288930-MS09	03/15/17	9	1.215	1420.80	1726.10	0.021	No	<0.000014	No	<0.000014	No	<0.000014	No
9288931-MS10	03/15/17	10	1.209	1416.00	1712.06	0.022	No	<0.000015	No	<0.000015	No	<0.000015	No
9288932-MS09	03/16/17	9	1.216	1287.60	1565.32	0.028	No	<0.000016	No	<0.000016	No	<0.000016	No
9288933-MS10	03/16/17	10	1.209	1283.40	1551.73	0.031	No	<0.000016	No	<0.000016	No	0.000019	No

Notes:

¹Air sample was not collected on days with rain or when contaminated soil was not disturbed.

mg = milligrams

mg/m³ = milligrams per cubic meter

< = below detection limit

Samples analyzed by ALS Environmental

Sample locations are shown on Figure 1

J = estimated value

l/min = liters per minute

min = minutes

m³ = cubic meters